

Patent Application

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**Device and Method for Determining the Chromatic Dispersion  
of Optical Components**

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**CLAIMS:**

1. Device for determining the chromatic dispersion of a sample (4) with
- 20 a radiation source (1) for emitting a radiation with different wavelengths,
- an interferometer apparatus (10) which comprises a reference arm (12)  
and a measurement arm (13) and which is irradiatable by the radiation  
source (1), for generating a sample-specific interference radiation,
- 25 a measurement apparatus, with which power changes and polarisation  
changes of the interference radiation are measurable, and
- an evaluation apparatus (7), with which the chromatic dispersion of the  
30 sample (4) is determinable on the basis of the power changes and the  
polarisation changes,
- characterised in that**
- 35 the measurement apparatus comprises a polarimeter (50).

2. Device according to claim 1, with two orthogonal polarisations being evaluatable with the polarimeter (50) in such a way that the power from the reference arm (12) of the interferometer apparatus (10) is split into two partial powers which are of the same magnitude.

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3. Device according to one of claims 1 and 2, with the radiation source (1) comprising a tuneable laser.

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4. Device according to one of claims 1 to 3, with the chromatic dispersion being determinable in the evaluation apparatus (7) by means of the evaluation of the wavelength-dependent Stokes parameters.

5. Method for determining the chromatic dispersion of a sample (4) with the steps:

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-generating an electromagnetic beam of a radiation with different wavelengths,

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-splitting the beam into a reference beam (12) and a measurement beam (13) with which the sample (4) is radiographed,

-superimposing the reference beam and the measurement beam whilst retaining an interference beam,

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-measuring power changes and polarisation changes of the interference beam as a function of the wavelength of the radiation, and

-determining the chromatic dispersion of the sample (4) on the basis of the wavelength-dependent power changes and polarisation changes,

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**characterised in that**

the measuring takes place with a polarimeter (50).

6. Method according to claim 5, with two orthogonal states of polarisation for determining the power changes being selected with the polarimeter (50) such that the power from reference arm (12) of the interferometer apparatus (10) is broken down into virtual partial powers of the same magnitude.
7. Method according to one of claims 5 and 6, with the electromagnetic radiation being generated by means of a tuneable laser (1).
8. Method according to one of claims 5 to 7, with the determining of the chromatic dispersion from the wavelength-dependent Stokes parameter occurring from the reference scan and the measurement scan.